UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

February 28, 2014

MEMORANDUM

Subject: Acute Toxicity review for EPA Reg. No. 1677-164
Data Package D416615
Product Name: Tsunami 100

From: Wallace Powell, Biologist
Chemistry and Toxicology Team
Product Science Branch
Antimicrobials Division (7510P)

Through: Karen Hicks, Team Leader
Chemistry and Toxicology Team
Product Science Branch
Antimicrobials Division (7510P)

To: Marshall Swindell, PM 33/ Karen Leavy
Regulatory Management Branch I
Antimicrobials Division (7510P)

Applicant: Ecolab Inc.

FORMULATION FROM PROPOSED LABEL:

| Active Ingredient: | % by weight |
|---|---|
| Hydrogen peroxide (EPA PC Code 000595) | 11.2 |
| Peroxyacetic acid (EPA PC Code 063201) | 15.2 |
| Other Ingredient(s): | 73.6 |
| Total: | 100.00 |

BACKGROUND

For the subject product, Tsunami 100, EPA Registration No. 1677-164, the applicant wishes to add labeling for a use-dilution container. It is found in the "Secondary Container Label", which is on page 6 (of 6) of the submitted labeling dated 10/21/2013. The use-dilution represented on that page is 20 fluid ounces product per 16.4 gallons of water (1.22 oz/gal) – 0.95% v/v.

DISCUSSION AND RECOMMENDATION

The acceptances below can be implemented when comment #1 in *PRODUCT LABELING* section below has been resolved.

Acute oral toxicity – use-dilution

The applicant has submitted, under MRID 492394-01, a rationale for citing a previously submitted acute oral toxicity study conducted in 1995, MRID 439218-03. The study appears valid. The test material represents a 10% w/v dilution of the subject product. The estimated $LD_{50}$ was 1,780 mg/kg (reported as 1.78 g/kg), which is in the Toxicity Category III range. The submitted rationale is based on the viewpoint that the test material was the product concentrate. But what was tested was actually a 10% w/v dilution, i.e., about 9% v/v. Thus, the product use-dilution concentration of 0.95% v/v is about one-tenth the concentration of the test material. A ten-fold dilution factor is insufficient grounds for assuming that the product use-dilution's $LD_{50}$ would be greater than 5,000 mg/kg, which is the lower bound for Toxicity Category IV. In the absence of further data, Toxicity Category III is assigned.

Note: The MRID 439218-03 study method corresponds to our previous study guidelines and the old OECD 401 method. It is not a current Guideline method. We are accepting it as cited data support in this instance because it was conducted and submitted prior to the new study guideline.

Acute dermal toxicity – use-dilution

The applicant has proposed the Cite-all method of support. Based on our records for other similar products (and the fact that the accepted label already reflects Toxicity Category IV), acute Toxicity Category IV is assigned.

Acute inhalation toxicity – use-dilution

The applicant has cited MRID 485118-02. The study was accepted on 9/26/2011 (Data Package 391432) for EPA Reg. No. 1677-185, in support of Toxicity Category IV. Category IV can be bridged to support Tsunami 100.

Eye irritation and skin irritation – use-dilution

The applicant has submitted MRID 492394-02 (eye irritation) and 492394-03 (skin irritation). The dilution used in the studies matches the use-dilution concentration on the submitted Secondary Container Label. Reviews of the two studies are appended below. The studies are acceptable and place Tsunami 100 in Toxicity Category III for eye irritation and IV for skin irritation.

Dermal sensitization – use-dilution

The applicant has proposed the Cite-all method of support. Based on our records for other similar products (and the fact that the accepted label already reflects the non-sensitizer category), the category of non-sensitizer is assigned.

Acute oral toxicity – product concentrate

1. In the main label (the labeling for the concentrate), the applicant has proposed to delete the word "fatal" from the precautionary statement "Harmful or fatal if swallowed" (thus changing the currently accepted wording to the wording that corresponds to Toxicity Category III). This is unacceptable. The applicant cites the MRID 439218-03 acute oral toxicity study in support of the word deletion. However, as indicated above (in the *Acute oral toxicity – use-dilution* section), the test material represents a 10% w/v dilution of Tsunami 100, not Tsunami 100 itself. The Toxicity Category III study result (and the Category III precautionary label statements from the *Label Review Manual*) cannot be applied to Tsunami 100 itself. The acute oral toxicity-related precautions on the last accepted label should be retained.

2. The applicant has also added to the main label the statement: "See side/back panel for First Aid." This is acceptable.

3. The human-hazard precautionary and first-aid statements in the main label (the labeling for the concentrate) are otherwise unchanged since the last label acceptance of 9/2/2009. Therefore, no further comment is needed.

Summary

The acute toxicity profile of the **0.95% v/v use-dilution** of Tsunami 100 is currently:

| Study | MRID | Means of Support | Toxicity Category **of use-dilution** | Status |
|---|---|---|---|---|
| Acute Oral Toxicity | 439218-03 | Cited | III | Unacceptable, upgradable* |
| Acute Dermal Toxicity | none | Cite-all | IV | |
| Acute Inhalation | 485118-02 | Cited | IV | |
| Primary Eye Irritation | 492394-02 | Acceptable study | III | |
| Primary Skin Irritation | 492394-03 | | IV | |
| Dermal Sensitization | none | Cite-all | Non-sensitizer | Acceptable |

* Can be accepted when comment #1 in *PRODUCT LABELING* section below has been resolved.

PRODUCT LABELING (draft labeling dated 10/21/2013)

1. Human-hazard precautionary and first-aid labeling for a product's use-dilution must reflect the most concentrated use-dilution only (*Label Review Manual*, Chapter 7, July 2012, page 7-15). In the directions for use of the submitted labeling, in the *Cleaning Hard Surface* section, in the third subsection, one of the instructions indicates use-dilutions of up to 8 ounces product per 3 gallons of water (i.e., about 2.7 ounces per gallon). This concentration is much greater than that of the Secondary Container Label. This deficiency must be resolved before the Secondary Container Label can be accepted.

2. In the *Hazards to Humans and Domestic Animals* paragraph of the Secondary Container Label, add: "Harmful if swallowed" – either immediately before or immediately after the sentence, "Causes moderate eye irritation."

3. The *First Aid* statements on the Secondary Container Label are incomplete without the *If swallowed* instructions:

   If swallowed:

   – Call a poison control center or doctor immediately for treatment advice.
   – Have person sip a glass of water if able to swallow.
   – Do not induce vomiting unless told to by a poison control center or doctor.
   – Do not give anything to an unconscious person.

4. As indicated in the above section, *Acute oral toxicity – product concentrate*, the proposed removal of the word "fatal" from the sentence "Harmful or fatal if swallowed" is unacceptable.

5. PSB has no other adverse comments regarding the human-hazard precautionary and First Aid statements in the Secondary Container Label, or regarding the submitted changes to such statements in the submitted main label.

## DATA REVIEW FOR ACUTE EYE IRRITATION TESTING (OPPTS 870.2400)

**Product Manager**: 33
**MRID No.**: 492394-02

**Reviewer**: W. Powell
**Study Completion Date**: 2/1/2013
**Report No.**: 0421LE31.011

**Testing Laboratory**: Calvert Laboratories, Inc. – Scott Township, PA
**Author**: Amanda Lemoncelli

**Quality Assurance (40 CFR §160)**: Included

**Test Material**: Tsunami 100 diluted at a rate of 1.22 oz/gallon deionized water
**Dosage**: 0.1 mL

**Species**: Rabbit, New Zealand White
**Sex**: 3 Females
**Age**: Approx. 11 weeks
**Weight**: 2.5 - 2.6 kg
**Source**: Millbrook

**Summary**:

1. **Toxicity Category**: III
2. **Classification**: Acceptable

**Deviations from Guideline 870.2400**: None noted

**Results**:

No corneal opacity was observed. Iritis was limited to grade 1 on the Draize scale. 'Positive' conjunctival redness was limited to grade 2 on the Draize scale, in 1 of 3 animals. Grade 4 conjunctival swelling was observed in 1 of 3 animals, grade 2 in 3 of 3 animals.

All 'positive' effects cleared by 72 hours. No irritation effects were observed in any of the control eyes.

**Incidence of Irritation**

| Time Post-Instillation | No. of Animals Testing "Positive" / No. of Animals Tested | | | |
|---|---|---|---|---|
| | Corneal Opacity | Iritis | Conjunctiva | |
| | | | Redness | Chemosis |
| 1 hour | 0 / 3 | 2 / 3 | 1 / 3 | 3 / 3 |
| 24 hours | 0 / 3 | 3 / 3 | 1 / 3 | 3 / 3 |
| 48 hours | 0 / 3 | 1 / 3 | 0 / 3 | 2 / 3 |
| 72 hours | 0 / 3 | 0 / 3 | 0 / 3 | 0 / 3 |

## DATA REVIEW FOR ACUTE DERMAL IRRITATION TESTING (OPPTS 870.2500)

**Product Manager**: 33
**MRID No.**: 492394-03

**Reviewer**: W. Powell
**Study Completion Date**: 3/25/2013
**Report No.**: 0420LE31.009

**Testing Laboratory**: Calvert Laboratories, Inc. – Scott Township, PA
**Author**: Amanda Lemoncelli

**Quality Assurance (40 CFR §160)**: Included

**Test Material**: Tsunami 100 diluted at a rate of 1.22 oz/gallon deionized water
**Dosage**: 0.5 mL

**Species**: Rabbit, New Zealand White
**Sex**: 3 Males
**Age**: Approx. 10.5 weeks
**Weight**: 2.3 - 2.5 kg
**Source**: Millbrook

**Summary**:

1. **Toxicity Category**: IV
2. **Classification**: Acceptable

**Deviations from Guideline 870.2500**: None noted.

**Results**:

Animals were dosed according to the "Stepwise exposure of animals" paragraph of the 870.2500 Guideline.

No erythema, edema, or other dermal signs were found during the 72-hour observation period following a four-hour exposure in three rabbits.

**Individual Skin Irritation Scores following the four-hour exposure**

| Animal No. | Sex | Erythema / Edema | | | |
|---|---|---|---|---|---|
| | | Time After Patch Removal | | | |
| | | 30-60 min | 24 hrs | 48 hrs | 72 hrs |
| 0646M | M | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 |
| 0647M | M | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 |
| 0648M | M | 0 / 0 | 0 / 0 | 0 / 0 | 0 / 0 |